

## PATENT COOPERATION TREATY

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## INTERNATIONAL PRELIMINARY REPORT ON PATENTABILITY

(Chapter II of the Patent Cooperation Treaty)

(PCT Article 36 and Rule 70)

Applicant's or agent's file reference 4540PTWO-ca		<b>FOR FURTHER ACTION</b>		See Form PCT/PEA/416
International application No. PCT/EP2004/052710		International filing date (day/month/year) 28.10.2004	Priority date (day/month/year) 30.10.2003	
International Patent Classification (IPC) or national classification and IPC C07D317/54				
Applicant ENDURA S.P.A. et al.				
<p>1. This report is the international preliminary examination report, established by this International Preliminary Examining Authority under Article 35 and transmitted to the applicant according to Article 36.</p> <p>2. This REPORT consists of a total of 5 sheets, including this cover sheet.</p> <p>3. This report is also accompanied by ANNEXES, comprising:</p> <p>a. <input type="checkbox"/> sent to the applicant and to the International Bureau a total of sheets, as follows:</p> <p><input type="checkbox"/> sheets of the description, claims and/or drawings which have been amended and are the basis of this report and/or sheets containing rectifications authorized by this Authority (see Rule 70.16 and Section 607 of the Administrative Instructions).</p> <p><input type="checkbox"/> sheets which supersede earlier sheets, but which this Authority considers contain an amendment that goes beyond the disclosure in the international application as filed, as indicated in item 4 of Box No. I and the Supplemental Box.</p> <p>b. <input type="checkbox"/> (sent to the International Bureau only) a total of (indicate type and number of electronic carrier(s)) , containing a sequence listing and/or tables related thereto, in computer readable form only, as indicated in the Supplemental Box Relating to Sequence Listing (see Section 802 of the Administrative Instructions).</p>				
<p>4. This report contains indications relating to the following items:</p> <p><input checked="" type="checkbox"/> Box No. I Basis of the opinion</p> <p><input type="checkbox"/> Box No. II Priority</p> <p><input type="checkbox"/> Box No. III Non-establishment of opinion with regard to novelty, inventive step and industrial applicability</p> <p><input type="checkbox"/> Box No. IV Lack of unity of invention</p> <p><input checked="" type="checkbox"/> Box No. V Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement</p> <p><input type="checkbox"/> Box No. VI Certain documents cited</p> <p><input type="checkbox"/> Box No. VII Certain defects in the international application</p> <p><input type="checkbox"/> Box No. VIII Certain observations on the international application</p>				
Date of submission of the demand  25.05.2005		Date of completion of this report  16.08.2005		
Name and mailing address of the international preliminary examining authority:  European Patent Office D-80298 Munich Tel. +49 89 2399 - 0 Tx: 523656 epmu d Fax: +49 89 2399 - 4465		Authorized Officer  Steendijk, M  Telephone No. +49 89 2399-8460		



**INTERNATIONAL PRELIMINARY REPORT  
ON PATENTABILITY**

International application No.  
PCT/EP2004/052710

**Box No. I Basis of the report**

1. With regard to the **language**, this report is based on the international application in the language in which it was filed, unless otherwise indicated under this item.
- ☐ This report is based on translations from the original language into the following language , which is the language of a translation furnished for the purposes of:
- ☐ international search (under Rules 12.3 and 23.1(b))
  - ☐ publication of the international application (under Rule 12.4)
  - ☐ international preliminary examination (under Rules 55.2 and/or 55.3)
2. With regard to the **elements\*** of the international application, this report is based on *(replacement sheets which have been furnished to the receiving Office in response to an invitation under Article 14 are referred to in this report as "originally filed" and are not annexed to this report)*:

**Description, Pages**

1-10 as originally filed

**Claims, Numbers**

1-9 received on 25.05.2005 with letter of 23.05.2005

- ☐ a sequence listing and/or any related table(s) - see Supplemental Box Relating to Sequence Listing
3. ☐ The amendments have resulted in the cancellation of:
- ☐ the description, pages
  - ☐ the claims, Nos.
  - ☐ the drawings, sheets/figs
  - ☐ the sequence listing *(specify)*:
  - ☐ any table(s) related to sequence listing *(specify)*:
4. ☐ This report has been established as if (some of) the amendments annexed to this report and listed below had not been made, since they have been considered to go beyond the disclosure as filed, as indicated in the Supplemental Box (Rule 70.2(c)).
- ☐ the description, pages
  - ☐ the claims, Nos.
  - ☐ the drawings, sheets/figs
  - ☐ the sequence listing *(specify)*:
  - ☐ any table(s) related to sequence listing *(specify)*:

\* If item 4 applies, some or all of these sheets may be marked "superseded."

**INTERNATIONAL PRELIMINARY REPORT  
ON PATENTABILITY**

International application No.  
PCT/EP2004/052710

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**Box No. V Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement**

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1. Statement

Novelty (N)	Yes: Claims	1-9
	No: Claims	
Inventive step (IS)	Yes: Claims	1-9
	No: Claims	
Industrial applicability (IA)	Yes: Claims	1-9
	No: Claims	

2. Citations and explanations (Rule 70.7):

**see separate sheet**

- 1) The present application relates to the preparation of aldehyde derivatives of alkoxyated benzenes, in particular piperonal, by catalytic conversion of the corresponding alcohols in the liquid phase in the presence of 1-2 equivalents of alkaline hydroxide, which in turn are prepared from the corresponding benzylchlorides via the corresponding benzyl acetates.

The amendments are based on claim 8 in combination with statements on page 7 as originally filed.

- 2) Cited documents  
D1: JP 55 022615 A  
D2: JP 57 009734 A  
D3: DATABASE CAPLUS [Online] CHEMICAL ABSTRACTS SERVICE, COLUMBUS, OHIO, US; 1937, QUELET ET AL.: "Synthesis of anisic alcohol" XP002322521 retrieved from STN Database accession no. 1937:817  
D4: BULLETIN OF THE CHEMICAL SOCIETY OF JAPAN, JAPAN PUBLICATIONS TRADING CO. TOKYO, JP, vol. 62, no. 11, November 1989 (1989-11), pages 3567-3571, XP001189402 ISSN: 0009-2673

- 3) Novelty  
Documents D1 and D2 describe the preparation of piperonal by catalytic oxidation of piperonyl alcohol; these documents do not describe the obtention of the alcohol from the chloride as presently defined nor do they specify the use of the defined amounts of alkaline hydroxide.

Documents D3 and D4 describe the preparation of alkoxyated benzyl alcohols or acetates from the corresponding benzyl chlorides. The documents do, however, not specifically describe the catalytic preparation of the benzyl aldehydes from the benzyl alcohols as presently defined.

- 4) Inventive step  
The present application shows in the example on page 9 high conversion of the piperonyl alcohol by use of 1-2 equivalents of alkaline hydroxide, which has been

confirmed to proceed with high selectivity.

In the light of D1 and D2 as closest prior art, which already describe the conversion of relevant benzyl alcohols to benzyl aldehydes, the problem underlying the present application seems to reside in the provision of a convenient, possibly improved process for preparing the benzyl aldehyde.

In this context it is observed, that document D1 describes generally lower conversion/selectivity rates than presently shown and that document D2 describes Pb- or Cu-mixed catalysts preferably used without an alkali compound.

It would not seem obvious to the person skilled in the art that increased conversion/selectivity rates could be obtained by the use of the defined amounts of alkaline hydroxides.

5) Further observations

The description, in particular page 7, line 20, requires adaptation to the new claims.